

REMARKS

By the above amendment, the claims have been amended in a manner which should overcome the objection to the claims with regard to the informalities noted, as well as to overcome the rejection of the claims under 35 U.S.C. §112, second paragraph. Additionally, the independent claims have been amended to recite a feature of the present invention as will be discussed below. New dependent claims 25 and 26 have been presented and the abstract has been amended in a manner which should overcome the objection thereto.

With regard to the objection to the drawings under 37 CFR 1.83(a) in that the light scattering layer provided between the second configuration element and the first configuration element must be shown or the feature(s) canceled from the claim(s), such objection is traversed in that applicants submit that such feature is illustrated in Fig. 6 of the drawings of this application, wherein the light scattering element 89 is provided between the first configuration element 73 and the second configuration element 71 as described at page 31, lines 2-5 of the specification. As indicated, the scattering layer 89 is bound or stuck firmly to the first configuration element 73 and the second configuration element 71. Thus, further illustration in the drawing of such feature is considered unnecessary and the claims reciting the aforementioned feature have the feature thereof illustrated.

As to the rejection of claims 7-12, 18-22 and 24 under 35 U.S.C. §112, second paragraph, this rejection is traversed insofar as it is applicable to the present claims, and reconsideration and withdrawal of the rejection are respectfully requested.

By the present amendment, the language of "both interference sources" has been deleted from the claims, with the claims being amended, where appropriate, to clarify features thereof. Additionally, the term "about" has been deleted, and likewise, with respect to the informalities in claims 12 and 18, such claims have been amended so as to avoid the informalities noted. Thus, applicants submit that claims 7-12, 18-22 and 24, as amended, should be considered to be in compliance with 35 U.S.C. §112, second paragraph.

As to the rejection of claims 7-8, 10-11, 18-21 and 23-24 under 35 U.S.C. §102(e) as being clearly anticipated by Yamaguchi et al (U.S. Patent No. 6,185,038); the rejection of claim 9 under 35 U.S.C. §103(a) as being unpatentable over Yamaguchi et al (U.S. Patent No. 6,185,038) in view of Mitani (U.S. Patent No. 5,815,313) or Ichikawa (U.S. Patent No. 4,988,164); the rejection of claims 12 and 22 under 35 U.S.C. §103(a) as being unpatentable over Yamaguchi et al (U.S. Patent No. 6,185,038); and the rejection of claims 1-6 and 13-17 under 35 U.S.C. §103(a) as being unpatentable Yamaguchi et al (U.S. Patent No. 6,185,038) in view of Hirata (U.S. Patent

No. 5,485,308); such rejections are traversed insofar as they are applicable to the present claims, and reconsideration and withdrawal of the rejections are respectfully requested.

At the outset, in order to support a rejection under 35 U.S.C. §102, reference is made to the decision of In re Robertson, 49 USPQ 2d 1949 (Fed. Cir. 1999), wherein the court pointed out that anticipation under 35 U.S.C. §102 requires that each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference. As noted by the court, if the prior art reference does not expressly set forth a particular element of the claim, that reference still may anticipate if the element is "inherent" in its disclosure. To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Moreover, the court pointed out that inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.

With respect to the requirements to support a rejection under 35 U.S.C. §103, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under §103 to

establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Furthermore, such requirements have been clarified in the recent decision of In re Lee, (Fed. Cir. 00-1158, 1/18/02) wherein the court in reversing an obviousness rejection indicated that deficiencies of the cited references cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge". The court pointed out:

The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual question of motivation is immaterial to

patentability, and could not be resolved on subjected belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion.

At the outset, it should be noted that each of independent claims 1, 7, 18, 23 and 24 have been amended to recite the feature as illustrated in Figs. 5-7 of the drawings, for example, that the second configuration element represented by the configuration element 71 is adhered to the first configuration element as represented by the configuration element 73 so as to eliminate an air boundary surface therebetween. As described at page 29, lines 5-16 of the specification, the first configuration element 73 is bound or stuck to the second configuration element 71 to give the strength that does not cause a problem in the practical use. Moreover, "an air boundary surface between the first configuration element 73 and a second configuration element 71 disappears, allowing the reduction in contrast due to an unnecessary reflected light to be reduced". (emphasis added) As noted above with respect to Fig. 6, the scattering layer 89 is bound or stuck firmly to the first configuration element 73 and the second configuration element 71, while Fig. 7 illustrates the adhering of the first configuration element

and the second configuration element to one another without the use of the scattering layer 89. By eliminating the air boundary surface between the first configuration element 73 and the second configuration element 71, a reduction in contrast due to an unnecessary reflected light is reduced.

Applicants submit that such features are not disclosed or taught in the cited art, irrespective of the Examiner's contentions concerning the other features as recited in the claims of this application.

Turning to Yamaguchi et al, the Examiner indicates that the screen of this patent comprises a first configuration element 5 having a plurality of lenticular lenses 5b on a light emission side, and light absorbing layer 6, provided on a light emission side of said lenticular elements. A second configuration element 7 is provided on an light emission side of the first configuration element. Also, the Examiner indicates that a light scattering material 9 may be mixed in the second configuration element. Irrespective of such disclosure of Yamaguchi et al, applicants submit that as clearly illustrated in Fig. 1 of Yamaguchi et al, the first and second configuration elements 5 and 7, as referred to by the Examiner, have an air boundary surface therebetween and are not adhered to one another so as to eliminate an air boundary surface therebetween, which as pointed out above, allows the reduction in contrast due to an unnecessary

reflected light to be reduced. Should the Examiner contend that other figures such as Figs. 2-4 of Yamaguchi et al show members adhered to one another, applicants note that the illustrated and disclosed features do not represent a first configuration element and a second configuration element having the features as recited in the independent claims of this application, such as light passing windows and light absorbing layer of the first configuration element at the light emission side, as recited in claim 1. Accordingly, applicants submit that each of the independent claims, as amended, and therewith the dependent claims, patentably distinguish over Yamaguchi et al in the sense of 35 U.S.C. §102 and 35 U.S.C. §103, with regard to the aforementioned feature, noting the claims recite additional features which are not disclosed or taught in the cited art. Accordingly, applicants submit that all claims should be considered allowable over Yamaguchi et al.

With regard to features of the dependent claims, it is noted that the Examiner in relation to claims 12 and 22, recognizes that Yamaguchi et al does not disclose the claimed features, but contends that it would have been obvious to provide such features. The Examiner is referred to the decisions of In re Fine, supra and In re Lee, supra, wherein the court has pointed out that obvious to try is not the standard of 35 U.S.C. §103 and common knowledge or common

sense does not render claimed features obvious. Thus, it is readily apparent that such claims as well as the other claims of this application patentably distinguish over Yamaguchi et al in the sense of 35 U.S.C. §103.

With respect to the other cited art of Mitani, Ichikawa and Hirata, applicants submit that such patents also fail to disclose the adhering of the first and second configuration elements, as claimed, to one another so as to eliminate an air boundary surface therebetween and with respect to the other features as recited, applicants submit that the combination fails to overcome the deficiencies of Yamaguchi et al and fail to provide the claimed features as recited in the independent and dependent claims of this application in the sense of 35 U.S.C. §103. As such, applicants submit that all claims patentably distinguish over the proposed combination of references in the sense of 35 U.S.C. §103, and should be considered allowable thereover.

In view of the above amendments and remarks, applicants submit that all claims present in this application should now be considered to be in compliance with 35 U.S.C. §112, second paragraph, and that all claims patentably distinguish over the cited art and should now be in condition for allowance. Accordingly, issuance of an action of a favorable nature is courteously solicited.

X To the extent necessary, applicant's petition for an

extension of time under 37 CFR 1.136. Please charge any
shortage in the fees due in connection with the filing of this
paper, including extension of time fees, to Deposit Account
No. 01-2135 (520.37710X00) and please credit any excess fees
to such deposit account.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend claims 1-7, 12, 13, 17, 18 and 22-24 as follows:

1. (amended) A screen for allowing a light generated by a light source and modulated by a picture display device having pixels laid out to form a matrix to produce an image thereon to be projected by using a projection optical means on said screen as an enlarged picture, said screen comprising:

a Fresnel lens sheet [placed on an emission side of said picture display device] forming Fresnel lenses at an emission side of said light;

a first configuration element having:

a plurality of lenticular lenses [provided on] at an incidence side of [a] light [passing through] emitted from said Fresnel lens sheet; [and]

light [absorbing layers] passing windows formed at a light emission side of said first configuration element and each provided at a place in close proximity to [the] each focal point of [one of] said lenticular lenses [and are separated from each other by a predetermined distance for forming a light passing unit];

a plurality of light absorbing layers each provided among said light passing windows; and

a second configuration element [having a light passing plate fixed] placed on said emission side of said first

configuration element;

wherein a pitch of said light passing [units] windows formed on said first configuration element is made smaller than a pitch of pixels projected and enlarged on said screen from said image produced by said picture display device; and
wherein said second configuration element is adhered to said first configuration element so as to eliminate an air boundary surface therebetween.

2. (amended) A screen according to claim 1 wherein an emission surface of [said] a light passing plate provided on said second configuration element is subjected to a reflection preventing process for preventing reflection of a visible light.

3. (amended) A screen according to claim 1 wherein, on an emission side of [said] a light passing plate provided on said second configuration element, there is provided a reflection preventing film for preventing reflection of a visible light.

4. (amended) A screen according to claim [1] 2 wherein a light scattering material is mixed inside said light passing plate.

5. (amended) A screen according to claim [1] 2 wherein a light scattering layer is provided between said light passing plate and said first configuration element.

6. (amended) A screen according to claim 1 wherein:

said Fresnel lenses of said Fresnel lens sheet are laid out at a pitch F_p ;

said light passing [units] windows are laid out in a horizontal direction of said screen at a pitch L_p ; and

a ratio L_p/F_p of said pitch L_p to said pitch F_p is set at a value in the range 1.588 to 1.649.

7. (amended) A screen for projecting an enlarged picture on said screen from a picture display apparatus including a light source, a picture display device implemented as a matrix of pixels each having a means for modulating the intensity of a light generated by said light source, and a projection optical means for projecting said displayed picture appearing on said picture display device,

said screen comprising:

a first configuration element having a plurality of lenticular lenses provided on a light-emission side of said picture display device and light absorbing layers provided on a light-emission side of said [Lenticular] lenticular lenses[,]; and

a light passing second configuration element provided on said light-emission side of said first configuration element[,];

said lenticular lenses having a longitudinal direction coinciding with a screen surface vertical direction and laid out contiguously in a screen surface horizontal direction; and

said light absorbing layers sandwiched by boundaries of

any two adjacent openings each provided at a location in close proximity to a focal point of one of said lenticular lenses associated with said opening;

wherein:

 said first and second configuration elements are bound or stuck to each other so as to eliminate an air boundary surface therebetween;

 a pitch of said openings is made smaller than a pitch of pixels projected and enlarged on said screen from said displayed picture output by said picture display device; and

 a pitch of interference lines caused by [both interference sources] interference between a pitch of an opening of said lenticular lenses and a pitch in the horizontal direction of pixels projected and enlarged on said screen from said image produced by said picture display device is set at a value [about] equal to or smaller than said pitch of pixels projected and enlarged on said screen from said displayed picture output by said picture display device.

12. (amended) A screen according to claim 7 wherein a third configuration element having Fresnel lenses is provided on a light-incidence side of said first configuration element;

 said Fresnel lenses of said third configuration element laid out at a lens pitch F_p ;

 said openings of said first configuration element are laid in a horizontal direction of said screen at a pitch L_p ;

 a ratio L_p/F_p of said lens pitch L_p to said pitch F_p is at a value in the range 1.588 to 1.649; and

a pitch M_{pl} of moire lines [caused by both interference sources] is set at a value smaller than a pitch I_{ph} of pixels projected and enlarged on said screen in a screen horizontal direction from said displayed picture output by said picture display device[; and

a pitch of interference lines caused by said both interference sources is set at a value about equal to or smaller than a pitch of pixels projected and enlarged on said screen from said displayed picture output by said picture display device].

13. (amended) A projection-type picture display apparatus comprising:

a light source;

a picture display device implemented as a matrix of pixels for modulating the intensity of a light generated by said light source; and

a projection optical means for projecting a picture appearing on said picture display device, a Fresnel lens sheet placed on an emission side of said picture display device;

a first configuration element having:

lenticular lenses provided on an incidence side of a light passing through said Fresnel lens sheet; and

light absorbing layers each provided at a place in close proximity to the focal point of one of said lenticular lenses and are separated from each other by a predetermined distance for forming a light passing [unit] window;

a second configuration element having a light passing

plate fixed on said emission side of said first configuration element; [and]

wherein[:] a pitch of said light passing [units] windows is made smaller than a pitch of pixels projected and enlarged on a screen by said picture display device; and

wherein said second configuration element is adhered to said first configuration element so as to eliminate an air boundary surface therebetween.

17. (amended) A projection-type picture display apparatus according to claim 13 wherein:

Fresnel lenses of said Fresnel lens sheet are laid out at a pitch F_p ;

said light passing [units] windows are laid out in a horizontal direction of said screen at a pitch L_p ; and

a ratio L_p/F_p of said pitch L_p to said pitch F_p is set at a value in the range 1.588 to 1.649.

18. (amended) A projection-type picture display apparatus comprising:

a light source;

a picture display device implemented as a matrix of pixels each having a means for modulating the intensity of a light generated by said light source;

a projection optical means for projecting a displayed image appearing on said picture display device; and

a screen used by said projection optical means to project said displayed image as an enlarge picture and provided with:

a first configuration element having a plurality of lenticular lenses provided on a light-emission side of said picture display device and light absorbing layers provided on a light-emission side of said lenticular lenses, and

a light passing second configuration element provided on said light-emission side of said first configuration element,

said lenticular lenses having a longitudinal direction coinciding with a screen surface vertical direction and laid out contiguously in a screen surface horizontal direction;

said light absorbing layers sandwiched by boundaries of any two adjacent openings each provided at a location in close proximity to a focal point of one of said lenticular lenses associated with said opening; and

said first and second configuration elements are bound or stuck to each other[,] so as to eliminate an air boundary surface therebetween;

wherein[:] a pitch of said openings is made smaller than a pitch of pixels projected and enlarged on said screen from said displayed image output by said picture display device; and

a pitch of interference lines caused by [both interference sources_] interference between a pitch of an opening of said lenticular lenses and a pitch in the horizontal direction of pixels projected and enlarged on said screen from said image produced by said picture display device is set at a value [about] equal to or smaller than said pitch of pixels projected and enlarged on said screen from said

displayed image output by said picture display device.

22. (amended) A projection-type picture display apparatus according to claim 18 wherein:

a third configuration element having Fresnel lenses is provided on a light-incidence side of said first configuration element;

said Fresnel lenses of said third configuration element are laid out at a lens pitch F_p ;

said openings of said first configuration element are laid out in a horizontal direction of said screen at a pitch L_p ;

a ratio L_p/F_p of said lens pitch L_p to said pitch F_p is set at a value in the range 1.588 to 1.649; and

a pitch M_{pl} of moire lines [caused by both interference sources] is set at a value smaller than a pitch I_{ph} of pixels projected and enlarged on said screen in a screen horizontal direction from said displayed image output by said picture display device[; and

a pitch of interference lines caused by said both interference sources is set at a value about equal to or smaller than a pitch of pixels projected and enlarged on said screen from said displayed picture output by said picture display device].

23. (amended) A screen comprising:

a Fresnel lens sheet;

a first configuration element having:

lenticular lenses provided on an incidence side of a light passing through said Fresnel lens sheet; and

light absorbing layers each provided at a place in close proximity to the focal point of one of said lenticular lenses and are separated from each other by a predetermined distance for forming a light passing [unit] window; and

a second configuration element having a light passing plate fixed on said emission side of said first configuration element;

wherein a pitch of said light passing [units] windows is made smaller than a pitch of pixels projected and enlarged on said screen from said image produced by said picture display device; and

wherein said second configuration element is adhered to said first configuration element so as to eliminate an air boundary surface therebetween.

24. (amended) A screen for projecting an enlarged picture on said screen from a picture display apparatus comprising:

a first configuration element having a plurality of lenticular lenses provided on a light-emission side of said picture display device and light absorbing layers provided on a light-emission side of said [Lenticular] lenticular lenses, and

a light passing second configuration element provided on said light-emission side of said first configuration element, said lenticular lenses having a longitudinal direction

coinciding with a screen surface vertical direction and laid out contiguously in a screen surface horizontal direction; and

said light absorbing layers sandwiched by boundaries of any two adjacent openings each provided at a location in close proximity to a focal point of one of said lenticular lenses associated with said opening;

wherein[:] said first and second configuration elements are bound or stuck to each other so as to eliminate an air interface therebetween;

a pitch of said openings is made smaller than a pitch of pixels projected and enlarged on said screen from said displayed picture output by said picture display device; and

a pitch of interference lines caused by [both interference sources] interference between a pitch of an opening of said lenticular lenses and a pitch in the horizontal direction of pixels projected and enlarged on said screen from said image produced by said picture display device is set at a value [about] equal to or smaller than said pitch of pixels projected and enlarged on said screen from said displayed picture output by said picture display device.

Please add the following new claims:

--25. A screen according to claim 1, wherein:

a pitch of said lenticular lenses formed on said first configuration element is L_p ;

a pitch of said Fresnel lens formed on said Fresnel lens sheet is F_p ;

a ratio of L_p/F_p of said pitch L_p to said pitch F_p is set

at a value in the range of 1.588 to 1.649;

a pitch M_{p1} of moire lines caused by said pitch L_p of said lenticular lenses and said pitch F_p of said Fresnel lens and a horizontal component I_{ph} of a pitch I_p of said pixels enlarged and projected on said screen are substantially equal; and

a ratio I_{pv}/F_p of a vertical component I_{pv} of said pitch I_p of said pixels enlarged and projected on said screen to said pitch F_p of said Fresnel lens is set to at least 2.

26. A screen according to claim 1, wherein said plurality of lenticular lenses of said first configuration element extend in a vertical direction and are arranged in a horizontal direction at the incident side of light emitted from said Fresnel lens sheet.--

IN THE ABSTRACT OF THE DISCLOSURE:

Please amend the abstract as follows:

ABSTRACT OF THE DISCLOSURE

A projection optical [means] system is used for projecting a light generated by a light source and modulated by a picture display device comprising pixels laid out to form a matrix on a screen as an enlarged picture. The screen is provided with a Fresnel lens sheet placed on an emission side of the picture display device, a first configuration element and a light passing plate fixed on the emission side of the first configuration element. The first configuration element has lenticular lenses and light absorbing layers. The

lenticular lenses are provided on an incidence side of a light passing through the Fresnel lens sheet. The light absorbing layers are each provided at a place in close proximity to the focal point of one of the lenticular lenses and are separated from each other by a predetermined distance for forming light passing [units. The pitch of the light passing units is made smaller than the pitch of pixels projected and enlarged on the screen from an image produced by the picture display device] windows.